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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/551,031	09/27/2005	Yoshitake Hara	IPE-062	4673
20374 7590 02/22/2008 KUBOVCIK & KUBOVCIK SUITE 1105 1215 SOUTH CLARK STREET ARLINGTON, VA 22202				
EXAMINER				
ARNBERG, MEGAN C				
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

# Office Action Summary

## Application No.

10/551,031

## Applicant(s)

HARA ET AL.

## Examiner

MEGAN ARNBERG

## Art Unit

1796

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 07 February 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SF/ICE)  
Paper No(s)/Mail Date 02/07/2006
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 2, 7, 10 and 12 rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The term "type" in claims 2 and 12 is a relative term which renders the claim indefinite. The term "type" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. Appropriate correction is required.

Claim 7 recites the limitation "the thermosetting resin" in the second line. There is insufficient antecedent basis for this limitation in the claim. For the purpose of further examination it is taken to mean the said resin is a thermosetting resin which is an epoxy resin.

Claim 10 recites the limitation "dielectric constant composition" in the second line. There is insufficient antecedent basis for this limitation in the claim. For the purpose of further examination it is taken to mean the dielectric composition.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 11, 13-15 and 19 are rejected under 35 U.S.C. 102(b) as being anticipated by Matsumura et al. (JP 2001-294445). The English machine translation of the Japanese patent application is cited below.

Regarding claim 11: '445 teaches a composition comprising an inorganic filler/powder (page 3 para. 8), and a resin (para. 6). The inorganic filler/powder has a mean particle diameter of 0.5-5 micrometers and another inorganic filler/powder has a mean particle diameter of 0.1-1 micrometers (claims 8 and 9). 5 micrometers is 3 times or more than 1 micrometer.

Regarding claim 13: '445 teaches the ratio inorganic powder to the whole is 30-50 vol%, which overlaps the claimed range (claim 5).

Regarding claims 14 and 15: '445 teaches the resin can be made from glycidyl acrylate monomers (para. 20), which makes an epoxy resin, which is a thermosetting resin.

Regarding claim 19: '445 teaches a capacitor with the composition as an insulating layer (para. 2).

Claims 11 and 16 are rejected under 35 U.S.C. 102(b) as being anticipated by Kato et al. (US 2001/0055699).

Regarding claim 11: Kato et al. teaches a composition comprising a resin/binder (abstract) and an inorganic filler with a diameter of 0.1  $\mu\text{m}$  (para. 41) and another inorganic filler with a diameter of 0.01-0.2  $\mu\text{m}$  (para. 47). The diameter 0.1  $\mu\text{m}$  is 3 times or more than 0.01  $\mu\text{m}$ .

Regarding claim 16: Kato et al. teaches the composition additionally comprising phosphoric acid esters (para. 64).

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-3, 5-7 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matsumura et al. (JP 2001-294445) as evidenced by Fang (US 2003/0138731). The English machine translation of the Japanese patent application is cited below.

Regarding claims 1, 5: '445 discloses a paste (abstract) comprising an inorganic filler/powder (page 3 para. 8), a resin (para. 6) and a solvent (para. 29). The solvent is gamma-butyrolactone (having a lactone structure), which has a boiling point above 160 °C, specifically 205 °C, as evidenced by Fang (para. 19). The inorganic filler has a mean particle diameter of 2 micrometers and 0.7 micrometers (para. 27).

The amount of the solvent is not disclosed. However, the experimental modification of this prior art in order to ascertain optimum operating conditions fails to render applicants' claims patentable in the absence of unexpected results. See *In re Aller*, 105 USPQ 233 and MPEP 2144.05. At the time of the invention a person having ordinary skill in the art would have found it obvious to optimize the amount of solvent and would have been motivated to do so for such desirable properties as a workable viscosity because, as '445 states, high viscosity may lead to gelling (para. 21). A prima facie case of obviousness may be rebutted, however, where the results of the optimizing variable, which is known to be result-effective, are unexpectedly good. See *In re Boesch and Slaney*, 205 USPQ 215.

Regarding claim 2: '445 teaches the filler can be barium titanate, strontium titanate, calcium zirconate, lead titanate, and lead zirconate (claim 4).

Regarding claim 3: '445 teaches an inorganic filler/powder with a mean particle diameter of 0.5-5 micrometers and another inorganic filler/powder with a mean particle diameter of 0.1-1 micrometers (claims 8 and 9). 5 micrometers is 3 times or more than 1 micrometer.

Regarding claims 6 and 7: '445 teaches the resin can be made from glycidyl acrylate monomers (para. 20), which makes an epoxy resin, which is a thermosetting resin.

Regarding claim 17: '445 teaches a capacitor with the composition as an insulating layer (para. 2). It is made by heating and drying (para. 24), which would remove the solvent.

Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Matsumura et al. (JP 2001-294445) as applied to claim 11 above. The English machine translation of the Japanese patent application is cited below.

Regarding claim 12: '445 teaches the basic claimed composition as set forth above, and that inorganic filler can be barium titanate, strontium titanate, calcium zirconate, lead titanate, and lead zirconate (claim 4). Not disclosed is that all fillers are one of these specific fillers. However, '445 provides teaching that a person having ordinary skill in the art at the time of the invention would have found it obvious to use one of these specific fillers for all inorganic fillers and been motivated to do so. '445 states that when sintering the composition at a lower temperature, there is a problem

with mixing the glass filler so much that the performance as a magnetic body or a dielectric falls (para. 4).

Claim 1, 2, 4, and 6-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kato et al. (US 2001/0055699) as evidenced by the Material Safety Data Sheet and Matsumura et al. (JP 2001-294445). The English machine translation of the Japanese patent application is cited below.

Regarding claim 1: Kato et al. teaches a composition comprising an inorganic filler/ferromagnetic powder in a resin/binder (abstract) and a solvent, specifically butyl stearate (para. 113), which has a boiling point 343 °C as evidenced by the MSDS (page. 3). The inorganic filler has a diameter of 0.005-0.5 µm (para. 47).

The amount of the solvent is not disclosed. However, the experimental modification of this prior art in order to ascertain optimum operating conditions fails to render applicants' claims patentable in the absence of unexpected results. At the time of the invention a person having ordinary skill in the art would have found it obvious to optimize the amount of solvent and would have been motivated to do so for such desirable properties as a workable viscosity because, as evidenced by '445, high viscosity may lead to gelling (para. 21).

Regarding claim 2: Kato et al. teaches the filler is titanium dioxide (para. 47).

Regarding claims 4 and 8: Kato et al. teaches the composition additionally comprising phosphoric acid esters (para. 64).



Regarding claims 6 and 7: Kato et al. teaches thermosetting resins like epoxy resins (para. 57).

Regarding claim 9: Kato et al. teaches a drying layers (para. 116), which would remove solvent. Also disclosed is the amount of 15-500 parts by weight resin/binder to 100 parts by weight to the ferromagnetic powder/inorganic filler (para. 99). If 15 parts of resin/binder and 100 parts ferromagnetic powder/inorganic filler, the percentage of filler is calculated to 87% by wt. Also disclosed is the porosity/void volume is less than 30% (para. 109).

Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kato et al. (US 2001/0055699) as applied to claims 1 and 9 above and in view of Matsumura et al. (JP 2001-294445). The English machine translation of the Japanese patent application is cited below.

Regarding claim 10: Kato et al. teaches the basic claimed composition as set forth above. Not disclosed is the film thickness between 0.05-20  $\mu\text{m}$ . However, '445 teaches a film thickness of 10 micrometers (para. 31). Kato et al. and '445 are combinable because they are both concerned with the same field of endeavor, namely epoxy resins with inorganic particles used for layers of electronic devices. At the time of the invention a person having ordinary skill in the art would have found it obvious to combine the film thickness of '445 with the composition of Kato et al. and would have been motivated to do so because of the high demand for miniaturization in multilayer ceramic capacitors, as evidenced by '445 (para. 2).

Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Matsumura et al. (JP 2001-294445) as applied to claim 1 above and in view of Ingman et al. (US 2003/0026584). The English machine translation of the Japanese patent application is cited below.

Regarding claim 18: '445 teaches the basic claimed composition as set forth above and removing/drying the solvent (para. 24). '445 does not teach an optical wire. However Ingman et al. teaches an optical wire/optical fiber made with a resin and containing inorganic filler particles (para. 70). '445 and Ingman et al. are combinable because they are both concerned with the same field of endeavor, namely resin composition comprising inorganic filler particles. At the time of the invention a person having ordinary skill in the art would have found it obvious to combine the optical wire/fiber of Ingman et al. with the composition of '445 and would have been motivated to do so because, as '445 states, the composition is dexterous and insulating (para. 2), which is needed in optical fibers.

Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kato et al. (US 2001/0055699) as applied to claim 11 above and in view of Ingman et al. (US 2003/0026584).

Regarding claim 20: Kato et al. teaches the basic claimed composition as set forth above and Kato et al. teaches a drying layers/removing solvent (para. 116). Kato et al. does not teach an optical wire. However Ingman et al. teaches an optical wire/optical fiber made with a resin and containing inorganic filler particles (para. 70).

Kato et al. and Ingman et al. are combinable because they are both concerned with the same field of endeavor, namely resin composition comprising inorganic filler particles. At the time of the invention a person having ordinary skill in the art would have found it obvious to combine the optical wire/fiber of Ingman et al. with the composition of Kato et al. and would have been motivated to do so because, as Kato et al. states, the composition has improved electromagnetic and thermal asperity characteristics (para. 17), which is needed in optical fibers.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. JP 2000-199956 appears to teach the composition.

### ***Correspondence***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MEGAN ARNBERG whose telephone number is (571)270-3292. The examiner can normally be reached on Monday - Friday 7:30-5:00 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Eashoo can be reached on (571) 272-1197. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR.

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/Mark Eashoo/  
Supervisory Patent Examiner, Art Unit 1796  
February 16, 2008

/M. A./  
Examiner, Art Unit 1796  
February 14, 2008